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An ISM-Based Strategic Priority Framework for Developing a Self-Sustaining Tourism Village: The Case of Marinsow Tourism Village as a Buffer Zone for a National Priority Destination

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Abstract

Tourism villages play an increasingly important role in supporting Indonesia's National Priority Destinations by distributing tourism benefits, strengthening local economies, and reducing development pressure on core destinations. However, previous studies have primarily examined community participation, destination competitiveness, governance, or sustainability as separate dimensions, providing limited understanding of the hierarchical structural relationships that enable advanced tourism villages to transform into self-sustaining tourism villages, particularly within buffer zones of National Priority Destinations. This study aims to identify the hierarchical relationships among strategic development factors and formulate priority interventions for transforming Marinsow Tourism Village into a self-sustaining tourism village. A qualitative research design employing Interpretive Structural Modeling (ISM) was implemented through a two-phase process consisting of qualitative exploration and expert judgment. Data were collected through in-depth interviews, field observations, document analysis, and structured ISM questionnaires involving ten purposively selected stakeholders representing village government, the regional tourism office, Village-Owned Enterprises (BUMDes), community leaders, tourism practitioners, youth organizations, and local residents. Expert consensus was used to construct the Structural Self-Interaction Matrix (SSIM), which was subsequently transformed into reachability matrices, MICMAC analysis, and a hierarchical strategic priority framework. The analysis identified four strategic development elements comprising twenty-two sub-elements. Land tenure certainty, development funding allocation, preservation of local wisdom, and environmentally friendly accessibility emerged as the principal driving factors, whereas tourism product innovation, digital accessibility, amenity development, and community-based economic activities were identified as highly dependent variables. Expert consistency levels ranging from 94% to 100% indicate a high level of reliability in the resulting structural model. The findings demonstrate that institutional strengthening and governance interventions should precede innovation-oriented tourism development to support the transformation of tourism villages into self-sustaining destinations. This study contributes to the rural tourism and Community-Based Tourism (CBT) literature by developing an ISM-based strategic priority framework that identifies the hierarchical drivers of tourism village transformation in Marinsow, a buffer zone of the Likupang National Priority Destination, thereby providing a structured basis for evidence-based policy formulation and sustainable tourism village development.

KEYWORDS
self-sustaining tourism village; interpretive structural modeling (ism); community-based tourism

Introduction

The Government of Indonesia has designated the Super Priority Tourism Destinations (SPTDs) as part of a national strategy to accelerate the development of a competitive and sustainable tourism sector. This policy identifies five strategic national destinations, namely Lake Toba in North Sumatra, Borobudur in Central Java, Labuan Bajo in East Nusa Tenggara, Mandalika in West Nusa Tenggara, and Likupang in North Sulawesi. The establishment of SPTDs is intended to fast-track infrastructure development, enhance destination quality, and strengthen tourism-based local economies in an integrated manner (Badan Pengembangan Infrastruktur Wilayah, Ministry of Public Works and Housing, 2020; Ministry of Tourism and Creative Economy, 2021).

In line with this policy direction, the development of tourism villages has become a strategic agenda within Indonesia's Medium-Term and Long-Term National Development Plans. Through the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, as well as the Ministry of Tourism and Creative Economy, the Government of Indonesia positions tourism villages as key instruments for job creation, the enhancement of local economic value, and the preservation of local wisdom and cultural heritage, while consistently adhering to the principles of sustainable tourism development (Bappenas, 2020; Ministry of Villages PDTT, 2022).

Within the context of sustainable tourism development, tourism villages play a strategic role as they are grounded in local resources, community participation, and the provision of authentic tourism experiences that vary across regions. Tourism villages function not only as alternative attractions but also as mechanisms for community empowerment, local economic strengthening, and environmental conservation (Giampiccoli & Mtapuri, 2012; Lane & Kastenholz, 2015a). Alongside shifts in global tourism market preferences, community- and environment-based destinations have become increasingly attractive to Generation Z and millennial tourists, who tend to seek tourism experiences that are sustainable, meaningful, and socially embedded (Goh & Baum, 2021; Richards, 2020).

Data from the Ministry of Tourism and Creative Economy indicate that, as of 2022, approximately 1,831 villages in Indonesia possess the potential to be developed as tourism villages. This rta represents a substantial opportunity for strengthening local economies, provided that tourism village management is implemented in an optimal and sustainable manner that balances economic, social, and environmental dimensions (Ministry of Tourism and Creative Economy, 2022).

The commitment of the Government of Indonesia to tourism village development is also reflected in Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia No. 8 of 2022 on the Priority Use of Village Funds for 2023, which is directed toward accelerating the achievement of the Sustainable Development Goals (SDGs). This regulation promotes village-based national economic recovery through the strengthening of Village-Owned Enterprises (BUMDes), the development of productive local economic activities, and the positioning of tourism villages as a leading sector of the rural economy (Ministry of Villages PDTT, 2022; Sachs et al., 2019).

One concrete implementation of this policy is the development of tourism villages through BUMDes within the Super Priority Tourism Destination (SPTD) area of Likupang, North Minahasa Regency, North Sulawesi Province. Likupang is recognized for its outstanding natural tourism potential, encompassing green hilly landscapes, white sandy beaches, rich marine biodiversity, and distinctive local culinary resources. Its designation as a Tourism Special Economic Zone (SEZ) further reinforces Likupang's role as a nationally strategic destination (National Council for Special Economic Zones, 2021). Within this context, East Likupang District comprises several villages with significant potential to function as supporting areas for the Likupang SPTD (Table 1) (Statistics Indonesia of North Minahasa, 2022).

Based on the Decree of the Regent of North Minahasa No. 88 of 2022, two tourism villages in East Likupang District have been officially designated and identified as having significant potential to support the Likupang Super Priority Tourism Destination, namely Marinsow Tourism Village and Pulisan Tourism Village. Within the national framework for tourism village development, the Government of Indonesia has established a staged classification system consisting of emerging, developing, advanced, and self-sustaining tourism villages, as outlined in the Tourism Village Development Guidelines (Coordinating Ministry for Maritime Affairs and Investment, 2021).

Marinsow Tourism Village is currently classified as an advanced tourism village, characterized by increasing community awareness of tourism potential, the availability of basic tourism facilities, and the involvement of local institutions in managing tourism activities. Nevertheless, the village continues to face various structural and social challenges in its transition toward becoming a self-sustaining tourism village, particularly in terms of community readiness, sustainable destination management, and institutional capacity to effectively perform its role as a supporting area for the Likupang Super Priority Tourism Destination.

Although tourism village development has received increasing scholarly attention, previous studies have predominantly examined community participation, destination competitiveness, governance, or sustainability outcomes as separate dimensions of rural tourism development. Existing studies provide limited understanding of the structural interrelationships among the multiple factors that enable advanced tourism villages to evolve into self-sustaining destinations, particularly in tourism villages functioning as buffer zones for National Priority Destinations. Consequently, policymakers still lack a systematic framework for identifying which development factors should be prioritized and how these factors interact within a hierarchical system.

Interpretive Structural Modeling (ISM) provides a suitable analytical approach because it identifies contextual relationships, driving factors, dependence structures, and hierarchical priorities among complex development variables. Unlike conventional tourism studies that focus primarily on identifying influencing factors, ISM reveals the structural sequence of interventions required for sustainable destination development. Applying ISM to a tourism village located within the buffer zone of a National Priority Destination also extends the rural tourism literature by demonstrating how structural governance, institutional capacity, and community resources interact to support the transformation toward a self-sustaining tourism village.

Although tourism village development has received increasing scholarly attention, previous studies have mainly examined community participation, destination competitiveness, governance, and sustainability as separate aspects of rural tourism development (Giampiccoli & Saayman, 2018). As a result, limited attention has been given to how these factors are structurally related and how they support the transition of advanced tourism villages toward self-sustaining destinations (Lane & Kastenholz, 2015b) . This gap is particularly important for tourism villages that serve as supporting areas of National Priority Destinations, where development depends on the interaction of governance, local resources, accessibility, and community capacity. To address this gap, this study applies Interpretive Structural Modeling (ISM) to Marinsow Tourism Village, a designated supporting

Table 1. List of Villages in East Likupang District

1.	**Winuri**
2.	Wineru
3.	Sarawet
4.	Rinondoran
5.	Resetlemen
6.	Pulisan
7.	Pinenek
8.	Marinsow
9.	Maen
10.	Likupang Kampung Ambog
11.	Likupang Dua
12.	Likupang Satu
13.	Lihunu
14.	Libas
15.	Kinunang
16.	Kalinaun
17.	Kahuhu
18.	Ehe

Source: Statistics Indonesia (BPS) of North Minahasa Regency (2022)

tourism village for the Likupang Super Priority Tourism Destination. The study identifies the hierarchical relationships among development factors, distinguishes their driving and dependent roles, and determines the strategic priorities needed to support the village's transition toward a self-sustaining tourism village. By combining ISM with rural tourism and Community-Based Tourism (CBT) perspectives, this study develops a hierarchical strategic framework that explains how key development factors are connected and provides a basis for prioritizing interventions in tourism village development (Attri et al., 2013a).

Accordingly, this study aims to identify the hierarchical relationships among the structural factors influencing the transformation of Marinsow Tourism Village into a self-sustaining tourism village using Interpretive Structural Modeling (ISM). It further aims to classify the driving and dependent factors through MICMAC analysis and to formulate strategic development priorities for tourism villages functioning as buffer zones of National Priority Destinations. The resulting strategic framework is expected to support the sustainable development of the Likupang Super Priority Tourism Destination by strengthening destination governance, enhancing tourism management practices, fostering local community participation, and promoting regional economic development.

Rural Tourism

Rural tourism represents an approach to tourism development that emphasizes the utilization of distinctive rural characteristics, including natural landscapes, agricultural activities, local culture, and community lifestyles as core tourism attractions (Lane, 1994; Lane & Kastenholz, 2015a). It is widely regarded as an alternative to mass tourism, as it prioritizes small-scale development, active involvement of local communities, and the provision of authentic and sustainable tourism experiences (UNWTO, 2018).

Lane (1994), emphasizes that rural tourism does not merely refer to tourism activities located in rural areas, but rather reflects a development approach that values environmental sustainability, cultural conservation, and the socio-economic balance of local communities. Rural tourism is a complex and dynamic phenomenon that requires a comprehensive understanding of the village as a social, economic, and cultural entity (Eddyono, 2024). Consequently, rural tourism development should be aligned with the environmental and social carrying capacity of rural areas and should not disrupt the primary functions of rural spaces as places of residence and production for local communities.

Within the context of destination development, rural tourism plays a significant role in diversifying tourism products and strengthening local economies. Rural-based tourism activities, such as nature-based tourism, cultural experiences, and everyday village life encounters, are capable of generating alternative income sources for local communities without compromising the integrity of local resources (Lane & Kastenholz, 2015a). As such, rural tourism serves as a strategic instrument for regional development oriented toward sustainability and inclusivity.

Furthermore, rural tourism is closely related to the concept of community-based tourism, as both approaches position local communities as key actors in destination management. However, rural tourism places greater emphasis on the spatial and structural context of rural areas, including infrastructure limitations, accessibility constraints, and the institutional capacity of village governance systems (Kastenholz et al., 2012). Therefore, tourism village development strategies within the rural tourism framework must comprehensively consider local village characteristics to ensure that tourism development does not exert excessive pressure on environmental and social systems.

From a destination competitiveness perspective, rural tourism requires a strategic approach that differs fundamentally from urban destinations or mass tourism settings. The competitive advantage of tourism villages within the rural tourism context lies in the uniqueness of local resources, the quality of tourism experiences, and the authenticity of social interactions between visitors and local communities (Lane & Kastenholz, 2015; Richards, 2020). Acordingly, tourism village development strategies should be oriented toward strengthening destination differentiation, enhancing the quality of visitor experiences, and ensuring the sustainable management of local resources.

Community-Based Tourism (CBT)

The development of tourism villages is conceptually grounded in the community-based tourism (CBT) approach, which positions local communities as the primary actors in the planning, management, and utilization of tourism activities. CBT emphasizes community participation, equitable distribution of economic benefits, and the preservation of local social and cultural values as the foundation of sustainable tourism development, particularly in rural areas (Giampiccoli & Saayman, 2018).

Within the rural tourism context, CBT is widely regarded as a strategic approach for promoting inclusive development and reducing economic disparities between urban and rural regions. This approach enables rural communities to productively utilize local resources while enhancing their social and economic capacities through well-managed tourism activities (UNWTO, 2020). Accordingly, tourism villages function not merely as spaces of tourism consumption, but also as sites of social and economic production rooted in local knowledge, skills, and cultural wisdom.

Furthermore, CBT plays a critical role in maintaining the sustainability of tourism village destinations by ensuring that tourism development remains within environmental and social carrying capacities. Active community involvement in destination management facilitates more context-sensitive decision-making, particularly in addressing the risks of environmental degradation and cultural erosion, thereby supporting the long-term sustainability of tourism destinations (Giampiccoli & Saayman, 2018; UNWTO, 2020). Consequently, CBT provides a relevant theoretical foundation for formulating tourism village development strategies that prioritize

sustainability and local community well-being.

Destination Competitiveness

Destination competitiveness is a central concept in tourism studies, including research on tourism village development and rural tourism. Destination competitiveness is commonly defined as the ability of a destination to attract, satisfy, and retain visitors on a sustainable basis in comparison with competing destinations (Enright & Newton, 2004; Zhang et al., 2011). In rural contexts, competitiveness is not primarily determined by the scale of development or the intensity of investment, but rather by a destination's capacity to manage and leverage the distinctiveness of its local resources. Key dimensions of destination competitiveness commonly include the quality of tourism attractions, tourism infrastructure, accessibility, destination management, safety and security, service quality, information and communication systems, marketing effectiveness, and environmental sustainability, all of which influence a destination's ability to create superior visitor experiences while maintaining long-term competitiveness (Dwyer et al., 2004); (Enright & Newton, 2004); (Dupeyras & Maccallum, 2013); (Stefán, 2023).

Crouch (2006), emphasize that destination competitiveness is constructed through the interaction between core resources, supporting factors, and the effectiveness of destination management. In the context of tourism villages, these core resources include natural landscapes, local culture, traditions, and authentic community lifestyles. The comparative advantages inherent in tourism villages must therefore be managed strategically in order to generate sustainable competitive advantages over time (Ritchie & Crouch, 2003).

From a rural tourism perspective, enhancing destination competitiveness is also closely associated with the ability of tourism villages to respond to changing tourist preferences, particularly the growing demand for nature-based, culture-oriented, and sustainability-driven tourism experiences. Consequently, strategies aimed at improving tourism village competitiveness should not focus solely on the development of physical attractions, but also on enhancing the quality of tourism experiences, strengthening local human resource capacities, and improving the effectiveness of destination governance (Cao et al., 2022; Enright & Newton, 2004).

Tourism Village Development

Tourism village development is widely recognized as a dynamic process in which rural destinations progressively strengthen their economic, social, institutional, and environmental capacities to achieve long-term sustainability (Butler, 1999; Lane & Kastenholz, 2015b) Recent international perspectives further emphasize that successful rural tourism development depends on integrated governance, community participation, cultural preservation, environmental sustainability, and destination management rather than tourism growth alone (UNWTO, 2022).

Unlike the Indonesian tourism village classification, international tourism literature does not explicitly categorize tourism villages into emerging, developing, advanced, and self-sustaining stages. Instead, destination development is genrally explained through destination evolution and rural tourism development frameworks, in which destination maturity is reflected by improvements in governance, tourism resources, infrastructure, community well-being, sustainability, and institutional capacity (Butler, 1999); (Lane & Kastenholz, 2015b); (UNWTO, 2022). The Best Tourism Villages by UN Tourism initiative also evaluates rural destinations using integrated dimensions, including cultural and natural resources, cultural preservation, economic sustainability, environmental sustainability, governance, infrastructure and connectivity, health and safety, and tourism value chain integration (UN Tourism, 2023).

Interpretive Structural Modeling (ISM)

Interpretive Structural Modeling (ISM) is a systems-based modeling approach developed by (Warfield, 1978) to analyze complex problems by identifying contextual relationships among variables and organizing them into a hierarchical structure. The method enables researchers to determine the driving power, dependence, and priority of each element within a system, thereby facilitating strategic decision-making in situations involving multiple interrelated factors (Warfield, 2010), (Warfield, 1978), (Attri et al., 2013). Owing to its capability to transform complex systems into structured hierarchical models, ISM has been widely applied in strategic planning, management, sustainability, and tourism research.

More recently, ISM has gained increasing attention as an analytical tool for addressing complex sustainability and tourism planning issues. The integration of ISM with MICMAC (Matrice d'Impacts Croisés Multiplication Appliquée à un Classement) analysis enables variables to be classified according to their driving power and dependence, providing a systematic basis for identifying key leverage factors and establishing strategic development priorities (Attri et al., 2013; Hussain et al., 2024). Consequently, ISM is regarded as an effective decision-support approach for analyzing the structural interrelationships among development factors and formulating evidence-based strategies in complex tourism systems.

Methods

The study was conducted in East Likupang Subdistrict, North Minahasa Regency, North Sulawesi Province, Indonesia, in mid-2023. Likupang Timur covers an area of approximately 290.84 km² and is geographically divided into three main zones: coastal areas, small islands, and inland regions. The distance from the subdistrict capital to the regency capital (Airmadidi) is approximately 29 km, while the distance to the provincial capital (Manado) is around 46 km.

East Likupang is bordered by the Sulawesi Sea and the Sangihe–Talaud region to the north, Bitung City to the east, Likupang Selatan Subdistrict to the south, and Likupang Barat Subdistrict to the west. The population of Likupang Timur is socio-culturally diverse, consisting of Minahasa, Sangihe–Talaud, Gorontalo, Makassar, Bolaang Mongondow, and Javanese ethnic groups. This diversity contributes to the richness of local cultural resources that support rural tourism development.

The subdistrict possesses substantial development potential across multiple sectors, including agriculture, fisheries, tourism, small-scale mining, local trade, transportation, and education. In particular, tourism has emerged as a strategic sector due to the designation of Likupang as a Super Priority Tourism Destination, positioning Likupang Timur as an important supporting area for destination development (North Minahasa Statistics Office, 2022).

This study employed a two-phase data collection process to ensure methodological rigor and to align with the requirements of Interpretive Structural Modeling (ISM). The first phase involved qualitative exploration to identify the strategic elements influencing community-based tourism (CBT) development in Desa Wisata Marinsow. Data were collected through field observations, semi-structured interviews, document analysis, and a preliminary questionnaire. The combination of multiple qualitative data sources enabled data triangulation, thereby enhancing the credibility and trustworthiness of the findings (Denzin, 2017). Semi-structured interviews were guided by open-ended questions focusing on

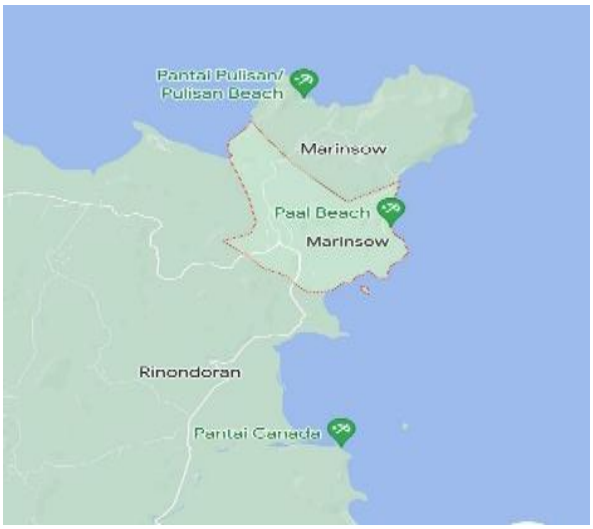


Figure 1. Administrative Map of East Likupang

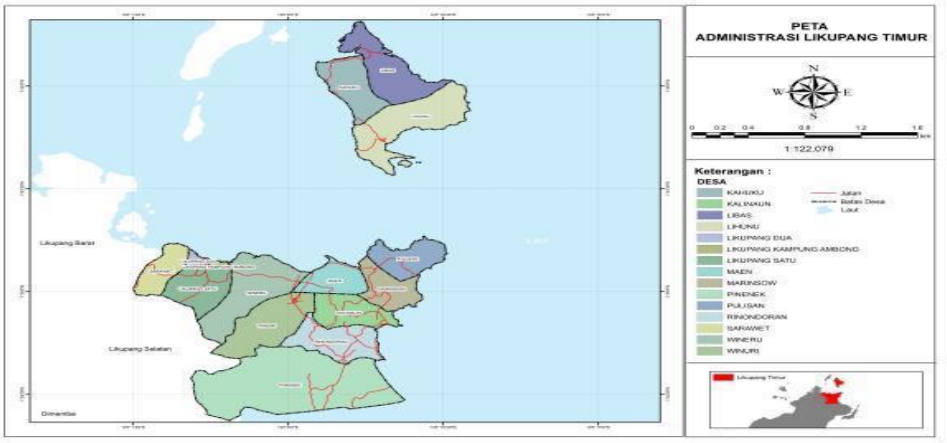


Table 2. Expert Judgment Consistency by Strategic Element

Strategic Element	No. of Sub-elements	Pairwise Relationships	No. of Experts	Total Judgments	Consistency (%)	Interpretation
Attractions	7	21	10	210	94%	High agreement
Accessibility	4	6	10	60	100%	Very high agreement
Amenities	6	15	10	150	98%	Very high agreement
Human Resources and Community	5	10	10	100	96%	Very high agreement

Table 3. Profile of Participants (Key Informants)

No.	Participant	Function	Location
1	Community Leader	Acts as a village government representative and a trusted individual in conveying community aspirations in Marinsow Village	Marinsow Tourism Village
2	Government Official	Responsible for tourism monitoring activities in Marinsow Village	Marinsow Tourism Village
3	Community Member	Resident working as a craftsman and head of the handicraft group in Marinsow Tourism Village	Marinsow Tourism Village
4	Community Member	Housewife who is also a member of the local handicraft group	Marinsow Tourism Village
5	Community Member	Owner of a food and beverage kiosk at Paal Beach	Paal Beach
6	Tour Guide	Resident with a secondary occupation as a local tour guide	Marinsow Tourism Village
7	Youth Organization (Karang Taruna) Member	Community member actively involved in various tourism-related activities in the village	Marinsow Tourism Village

No.	Participant	Function	Location
8	BUMDes Member	Responsible for managing village funds related to tourism activities	Marinsow Tourism Village
9	Government Official	Responsible for tourism monitoring at the regency level of North Minahasa	Tourism Office

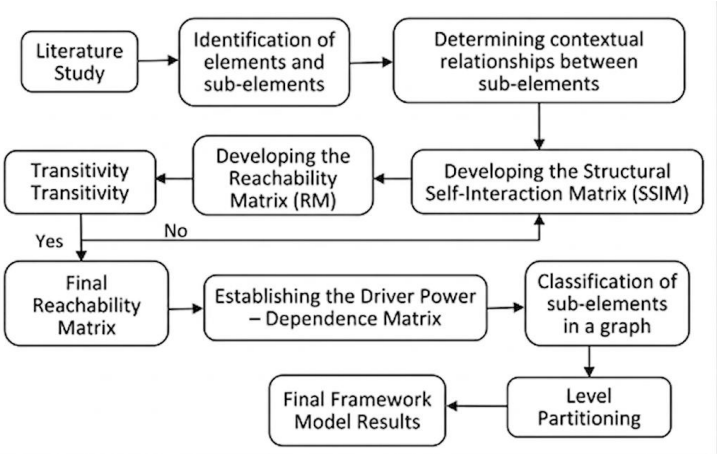


Figure 2. ISM Stages

tourism development challenges, stakeholder roles, community participation, institutional capacity, and perceived priorities for sustainable tourism development.

The findings from the interviews and document analysis were first coded and synthesized into strategic elements and sub-elements. These validated sub-elements were subsequently transformed into pairwise comparison questions within the Structural Self-Interaction Matrix (SSIM), enabling experts to evaluate contextual relationships using the standard V, A, X, and O symbols.

The second phase consisted of expert judgment using a structured ISM questionnaire. In this phase, experts assessed the contextual relationships among the identified strategic elements by completing the Structural Self-Interaction Matrix (SSIM). The questionnaire required experts to determine the directional influence between each pair of elements using the standard ISM symbols (V, A, X, and O). The results were subsequently transformed into the Reachability Matrix and analyzed to construct the hierarchical ISM model.

Expert consensus was established through one structured deliberation round conducted during a Focus Group Discussion (FGD). The preliminary strategic elements and sub-elements were identified through field observations, semi-structured interviews, and document analysis, and were subsequently discussed and validated with the experts during the FGD. No fixed numerical retention threshold was applied. Instead, the relevance of each element and sub-element was determined through expert discussion and clarification during the FGD. Where differences in individual judgments occurred, these were discussed and clarified within the same FGD before the elements and sub-elements were finalized. Only elements and sub-elements considered relevant and supported by the expert discussion were retained for the subsequent Structural Self-Interaction Matrix (SSIM) assessment. For the contextual relationships among the retained sub-elements, each expert provided individual judgments using the standard V, A, X, and O symbols. The final contextual relationship for each pair of sub-elements was determined based on the modal response across the experts.

Participants were selected using purposive sampling because they possessed extensive knowledge, practical experience, and decision-making responsibilities related to tourism development in Desa Wisata Marinsow (Creswell & Poth, 2016). The participants included representatives of the village government, community leaders, youth organization members, Village-Owned Enterprise (BUMDes) managers, local artisans, tour guides, local residents, and officials from the North Minahasa Tourism Office.

A total of ten experts participated in both the qualitative exploration and the ISM assessment. This sample size is consistent with ISM methodology, which emphasizes the selection of knowledgeable experts rather than large respondent numbers. Previous ISM studies have demonstrated that expert panels ranging from approximately 8 to 20 participants are adequate to generate reliable structural relationships when participants possess substantial expertise and represent key stakeholder groups (Attri et al., 2013; Saxena et al., 1992).

Methodological rigor was ensured through data triangulation, expert validation, and consistency assessment. Triangulation was achieved by combining semi-structured interviews, field observations, document analysis, and structured expert questionnaires. Following the construction of the Structural Self-Interaction Matrix (SSIM), the V, A, X, and O judgments provided by the experts were converted into binary values to construct the initial Reachability Matrix (RM), following the standard ISM procedure (Attri et al., 2013; Warfield, 2007a). Expert consistency was assessed at the pairwise relationship level by comparing the judgments provided by the experts for each contextual relationship among sub-elements. The consistency percentage was calculated as the proportion of judgments that were consistent with the final aggregated relationship relative to the total number of judgments, expressed as: Consistency (%) = (Number of consistent judgments / Total number of judgments) × 100. The overall expert consistency obtained in this study was 98%, indicating a very high level of agreement among the experts in establishing the contextual relationships. Expert consistency was assessed at the pairwise relationship level by comparing individual expert judgments with the final aggregated contextual relationship. The consistency percentage was calculated as the proportion of judgments that agreed with the final aggregated relationship relative to the total number of judgments. For each strategic element, the denominator was determined from the number of pairwise relationships among its sub-elements multiplied by the number of participating experts. The resulting consistency levels were 94% for

Attractions, 100% for Accessibility, 98% for Amenities, and 96% for Human Resources and Community (Table 2).

Table 3 presents the profile of the research participants, including their institutional roles, areas of expertise, and stakeholder representation. Their diverse backgrounds ensued that the strategic elements and contextual relationships reflected multiple perspectives on sustainable community-based tourism development.

This study employed Interpretive Structural Modeling (ISM) as the primary analytical technique to formulate development strategies for Desa Wisata Marinsow. ISM is a qualitative, systems-based modeling method designed to structure complex problems by identifying relationships among elements and organizing them into a hierarchical framework (Warfield, 2007b).

ISM is widely applied in strategic planning, sustainability studies, and tourism research to support decision-making in contexts characterized by interdependent variables and high levels of complexity (Attri et al., 2013; Faisal, 2010a). In this study, ISM analysis was conducted using the EXSIMPRO software, which facilitates matrix construction, hierarchy development, and driving–dependence classification.

The ISM procedure followed in this study was adapted from established methodological frameworks (Attri et al., 2013; Warfield, 2007a) and consisted of the following stages (Figure 2):

(1) Identification of elements. Key elements relevant to the development of a self-sustaining tourism village were identified based on an extensive literature review, field observations, document analysis, and expert input. In this study, the elements represent strategic dimensions required to support the transformation of Desa Wisata Marinsow from an advanced tourism village toward a self-sustaining tourism village.

(2) Development of sub-elements through expert consultation. Each element was further elaborated into sub-elements through field observations, semi-structured interviews, and individual discussions with experts. Expert judgment was used to validate the relevance and contextual appropriateness of the identified sub-elements and their logical interrelationships. Following the expert validation process, the finalized sub-elements were included in the structured questionnaire for the ISM assessment (Attri et al., 2013).

(3) Construction of the Structural Self-Interaction Matrix (SSIM). The results of the expert assessments were organized into a Structural Self-Interaction Matrix (SSIM) to define the contextual relationships between pairs of sub-elements (i, j). The direction of influence was represented using four standard ISM symbols: (a) V, when element i influences element j; (b) A, when element j influences element i; (c) X, when elements i and j influence each other; and (d) O, when no significant contextual relationship exists between elements i and j (Attri et al., 2013; Warfield, 2007a).

(4) Development of the Reachability Matrix (RM). The SSIM was transformed into a binary Reachability Matrix (RM) by converting the V, A, X, and O symbols into values of 1 and 0. A transitivity check was subsequently performed to ensure logical consistency, resulting in the Final Reachability Matrix. The Final Reachability Matrix was then used to calculate the driving power and dependence of each sub-element (Attri et al., 2013; Warfield, 2007a).

(5) Level partitioning. Based on the Final Reachability Matrix, the sub-elements were partitioned into hierarchical levels. Sub-elements with strong driving power and low dependence were positioned at lower levels of the hierarchy, indicating greater strategic priority for intervention (Attri et al., 2013).

(6) MICMAC analysis. Using EXSIMPRO, the sub-elements were classified into four categories based on their driving power and dependence characteristics: (a) autonomous variables, characterized by weak driving power and weak dependence; (b) dependent variables, characterized by weak driving power and strong dependence; (c) linkage variables, characterized by strong driving power and strong dependence; and (d) independent variables, characterized by strong driving power and weak dependence (Attri et al., 2013).

(7) Development of the ISM hierarchical model. The hierarchical relationships among the sub-elements were visualized in the form of an ISM model. The resulting structure was interpreted from the lowest level, representing the highest priority for intervention, to the highest level, representing outcomes that depend on the underlying driving factors (Attri et al., 2013; Warfield, 2007a).

(8) Strategy formulation. The final ISM model served as a conceptual framework for strategy formulation, resulting in strategic recommendations to support the transformation of Desa Wisata Marinsow from an advanced tourism village toward a self-sustaining tourism village.

This procedure is consistent with the standard ISM methodology, which emphasizes the identification of contextual relationships among system elements through expert judgment, followed by the construction of the Structural Self-Interaction Matrix, Reachability Matrix, hierarchical structure, and driving–dependence classification (Attri et al., 2013; Warfield, 2007a).

Result and Discussion

This study employs Interpretive Structural Modeling (ISM) to identify and map the structural relationships among strategic factors influencing the development of Marinsow Tourism Village toward a self-sustaining tourism village category. In accordance with ISM principles, the research findings are presented in terms of structural relationships, levels of driving power, degrees of dependence, and hierarchical arrangements of elements derived from expert consensus (Attri et al., 2013; Warfield, 2007b).

Data processing was conducted by aggregating expert judgments using the modal values of each respondent's Reachability Matrix (RM), thereby ensuring that the resulting structure reflects collective expert agreement. Interrelationships among sub-elements were analyzed using the VAXO (V, A, X, O) approach, which represents the direction and existence of contextual relationships among variables and constitutes a standard procedure in ISM applications (Warfield, 2007b). All ISM analyses were performed using the EXSIMPRO software.

Elements and Sub-Elements of Self-Sustaining Tourism Village Development

Based on the indicators of self-sustaining tourism village development, this study identifies four main elements, namely Attractions, Accessibility, Amenities, and Human Resources and Community. The identification of these elements and their corresponding sub-elements was conducted through an extensive literature review and expert validation, as recommended in ISM applications for complex and multidimensional strategic problems (Attri et al., 2013; Faisal, 2010b). The finalized list of elements and sub-elements, presented in Table 4, constitutes the basis for constructing the Structural Self-Interaction Matrix (SSIM). The identification of the strategic elements and sub-elements was conducted through a combination of literature and policy review, field observations, semi-structured interviews, document analysis, and expert validation. The process distinguished theoretically derived indicators from context-specific factors identified from the empirical conditions of Marinsow Tourism Village. Each proposed sub-element was subsequently reviewed by the

Table 4. Strategic Elements and Sub-elements of Self-Sustaining Tourism Village Development

No.	Element	Sub-Elements
E1	Attractions	Innovation or diversification of tourism products based on market-oriented independent entrepreneurship
E2		Development of tourism products that can be integrated with other destinations
E3		Implementation of destination carrying capacity in visitor management in line with sustainable tourism principles
E4		Resolution of land tenure issues involving corporate land leases
E5		Allocation and disbursement of designated funds for tourism destination development
E6		Development of pig farming as a local livelihood activity in Marinsow Tourism Village
E7		Establishment of coastal zoning to prevent tourism activities from disturbing sea turtle habitats
E1	Accessibility	Provision of environmentally friendly transportation aligned with local wisdom
E2		Development of environmentally friendly and safe access for persons with disabilities, elderly visitors, and children
E3		Development of digitally enabled access and information systems
E4		Design of integrated travel routes and visitor flow patterns
E1	Amenities	Revitalization of culinary kiosks, public toilets, entrance gates, and gazebos
E2		Development of souvenir outlets reflecting local cultural identity
E3		Construction of prayer facilities (musholla) at tourism sites
E4		Development of selfie areas and photo spots representing Marinsow Tourism Village
E5		Establishment of a tourist information center
E6		Organization and management of parking areas
E1	Human Resources and Community	Improvement of education levels within Marinsow Tourism Village
E2		Enhancement of local human resource knowledge and skills in tourism management
E3		Optimization of local livelihoods (e.g., farming) to ensure food self-sufficiency for tourism and surrounding villages
E4		Strengthening the role and activity of the local tourism awareness group (Pokdarwis)
E5		Preservation and protection of local wisdom, traditions, and cultural heritage

Table 4. Contextual Relationships among Attraction Sub-Elements (SSIM)

No.	E1	E2	E3	E4	E5	E6	E7
E1		X	A	A	A	O	A
E2			A	A	A	O	A
E3				A	A	O	X
E4					X	O	V
E5						O	V
E6							A
E7							

Table 5. ISM VAXO Processing Results

No.	E1	E2	E3	E4	E5	E6	E7
E1	1	1	0	0	0	0	0
E2	1	1	0	0	0	0	0
E3	1	1	1	0	0	0	1
E4	1	1	1	1	1	0	1
E5	1	1	1	1	1	0	1
E6	0	0	0	0	0	1	0
E7	1	1	1	0	0	1	1

Table 6. Final Reachability Matrix for the Attraction Element

No.	E1	E2	E3	E4	E5	E6	E7	DP	R
E1	1	1	0	0	0	0	0	2	3

E2	1	1	0	0	0	0	0	2	3
E3	1	1	1	0	0	1	1	5	2
E4	1	1	1	1	1	1	1	7	1
E5	1	1	1	1	1	1	1	7	1
E6	0	0	0	0	0	1	0	1	4
E7	1	1	1	0	0	1	1	5	2
D	6	6	4	2	2	5	4		
L	1	1	3	4	4	2	3		

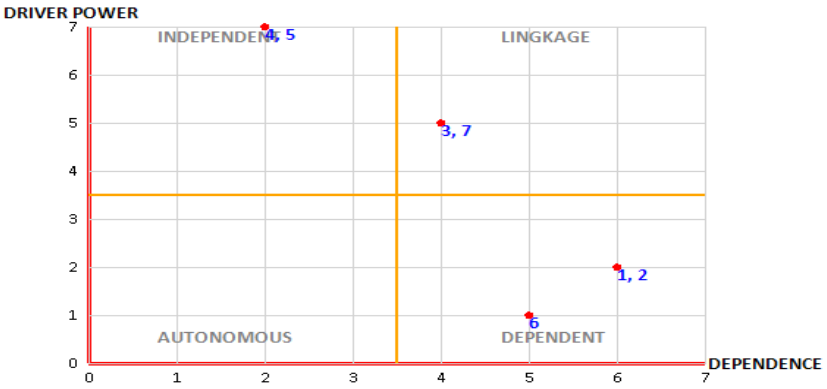


Figure 3. Driving Power–Dependence Relationships among Attraction Sub-Elements

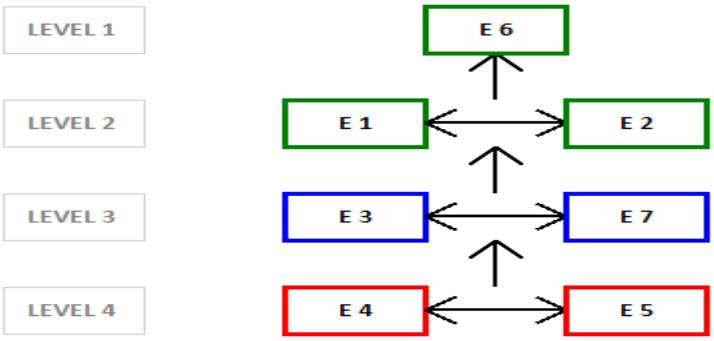


Figure 4. Partition Levels of Attraction Sub-elements

Table 7. Contextual Relationships among Accessibility Sub-Elements (SSIM)

No	E1	E2	E3	E4
E1		A	V	V
E2			V	V
E3				X

Table 8. ISM VAXO Processing Results Reachability Matrix for the Accessibility Element

No	E1	E2	E3	E4
E1	1	0	1	1
E2	1	1	1	1
E3	0	0	1	1
E4	0	0	1	1

Tabel 8. Final Reachability Matrix of Accessibility Elements

No	E1	E2	E3	E4	DP	R

E1	1	0	1	1	3	2
E2	1	1	1	1	4	1
E3	0	0	1	1	2	3
E4	0	0	1	1	2	3
D	2	1	4	4		
L	2	3	1	1		

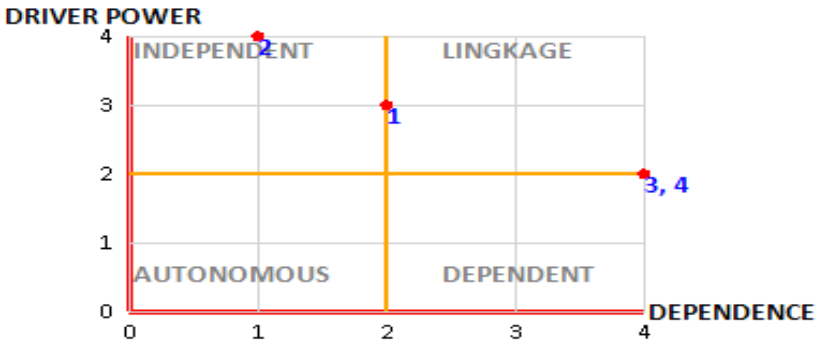


Figure 5. Driving Power–Dependence Relationship of Accessibility Sub-Elements

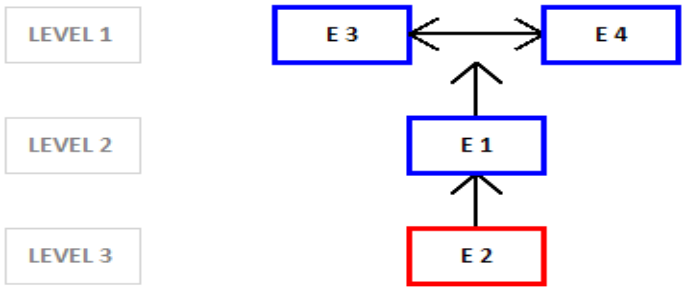


Figure 6. Level Partitioning of Accessibility Sub-Elements

Table 9. Contextual Relationship Results among Amenity Sub-Elements

No	E1	E2	E3	E4	E5	E6
E1		A	A	A	A	A
E2			X	V	X	V
E3				V	V	V
E4					A	A
E5						V
E6						

Table 10. Results of ISM–VAXO Reachability Processing for the Amenity Element

No	E1	E2	E3	E4	E5	E6
E1	1	0	0	0	0	0
E2	1	1	1	1	1	1
E3	1	1	1	1	1	1
E4	1	0	0	1	0	0
E5	1	1	0	1	1	1
E6	1	0	0	1	0	1

Table 11. Final Reachability Matrix of the Amenity Element

No	E1	E2	E3	E4	E5	E6	DP	R

E1	1	0	0	0	0	0	1	4
E2	1	1	1	1	1	1	6	1
E3	1	1	1	1	1	1	6	1
E4	1	0	0	1	0	0	2	3
E5	1	1	1	1	1	1	6	1
E6	1	0	0	1	0	1	3	2
D	6	3	3	5	3	4		
L	1	4	4	2	4	3		

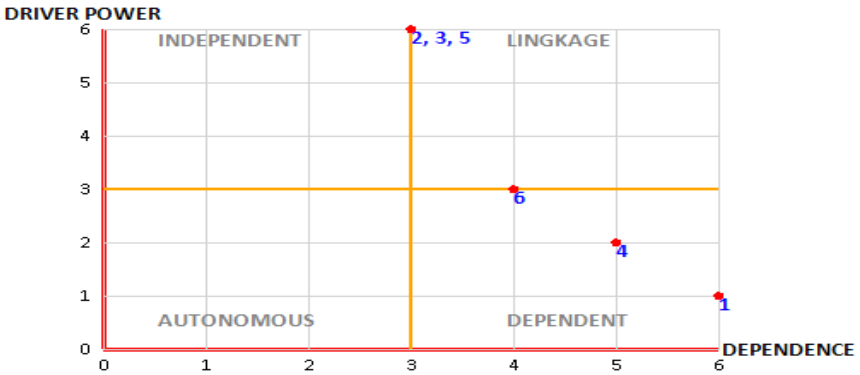


Figure 7. Driving Power–Dependence Relationship of Amenity Sub-Elements

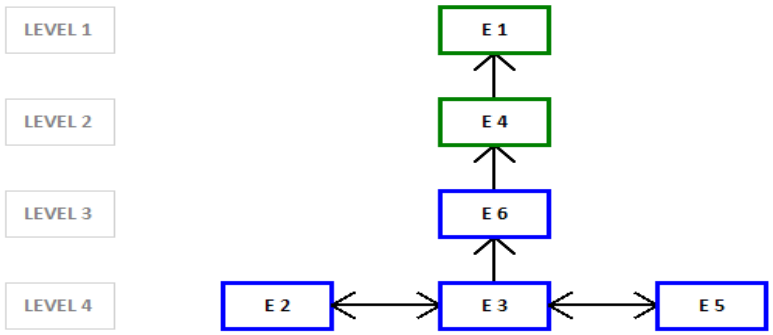


Figure 8. Hierarchical Structure of Amenity Sub-Elements

Table 12. Results of Contextual Relationships among Human Resources and Community Sub-Elements

No	E1	E2	E3	E4	E5
E1		X	O	V	A
E2			V	V	A
E3				A	A
E4					A
E5					

Table 13. Results of ISM–VAXO Reachability Processing for the Human Resources and Community Element

No	E1	E2	E3	E4	E5
E1	1	1	0	1	0
E2	1	1	1	1	0
E3	0	0	1	0	0
E4	0	0	1	1	0
E5	1	1	1	1	1

Table 14. Final Reachability Matrix of the Human Resources and Community Element

No	E1	E2	E3	E4	E5	DP	R
E1	1	1	1	1	0	4	2
E2	1	1	1	1	0	4	2

E3	0	0	1	0	0	1	4
E4	0	0	1	1	0	2	3
E5	1	1	1	1	1	5	1
D	3	3	5	4	1		
L	3	3	1	2	4		

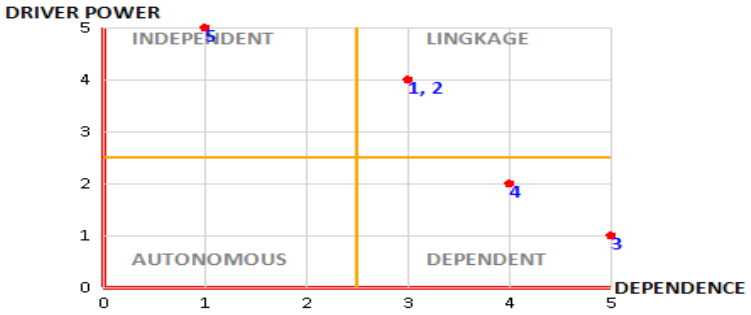


Figure 9. Driving Power–Dependence Relationship of Human Resources and Community Sub-Elements in Marinsow Tourism Village

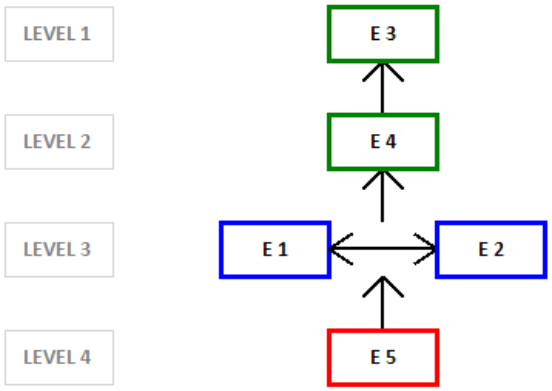


Figure 10. Levels of Human Resources and Community Sub-Elements

experts for its contextual relevance before being included in the ISM analysis. The complete source and evidence traceability of the 22 sub-elements is presented in Appendix A.

The Attraction element comprises seven sub-elements representing the core aspects of destination attractiveness and management in Marinsow Tourism Village. Contextual relationships among these sub-elements were determined based on expert judgments and organized into a Structural Self-Interaction Matrix (SSIM) (Table 3), following standard ISM procedures for identifying the direction of influence among variables (Warfield, 2007b).

The SSIM was subsequently converted into a Reachability Matrix (RM) in the form of a binary matrix (Table 5). This conversion process aims to identify direct relationships among sub-elements prior to transitivity testing, as recommended in the ISM methodology (Attri et al., 2013). The transitivity test resulted in the Final Reachability Matrix (Table 6), which represents both direct and indirect relationships among the attraction sub-elements. The level of expert judgment consistency for the attraction element reached 94%, indicating a high degree of reliability in the resulting structural relationships. The results indicate that institutional and governance-related attraction factors exert substantially greater influence than tourism product innovation. This suggests that resolving land tenure issues and securing sustainable development funding constitute the primary managerial priorities for Marinsow Tourism Village before expanding tourism products or introducing new visitor experiences.

Driving Power and Dependence Analysis of the Attraction Element

Based on the Final Reachability Matrix, the driving power and dependence values were calculated for each attraction sub-element and subsequently visualized using a Driving Power–Dependence (MICMAC) diagram (Figure 3). MICMAC analysis is widely applied within the ISM framework to classify variables according to their levels of influence and dependence within a system, thereby facilitating the identification of key driving and dependent factors in complex strategic contexts (Attri et al., 2013; Faisal, 2010a).

The MICMAC analysis indicates that none of the attraction sub-elements fall within the Autonomous quadrant, indicating that all attraction components are structurally interconnected within the tourism village development system. This finding suggests that no variable operates independently; instead, changes in one attraction component are likely to influence other components. Therefore, tourism development should adopt an integrated approach rather than focusing on isolated interventions. As shown in Table X, sub-elements with higher Driving Power (DP) should be prioritized because they exert greater influence on the system, whereas those with higher Dependence (D) primarily represent outcomes of interactions among other variables.. The sub-elements related to land tenure resolution (E4) and optimization of destination

development funding (E5) are positioned in the Independent quadrant, highlighting their roles as key driving factors within the system. Meanwhile, the implementation of destination carrying capacity (E3) and protection of sea turtle habitats (E7) are classified within the Linkage quadrant, reflecting their strong influence and dependence. In contrast, tourism product innovation (E1), inter-destination connectivity (E2), and pig farming development (E6) are categorized as Dependent sub-elements.

Hierarchical Structure of Attraction Sub-Elements

The subsequent stage of the ISM analysis involves the construction of a hierarchical structure, which aims to determine development priorities based on the level of influence exerted by each sub-element (Warfield, 1974). The ISM hierarchical model for the attraction element (Figure 4) indicates that the sub-elements are organized into four hierarchical levels, with the sub-elements located at the lowest level representing the most strategic driving factors within the system.

The ISM hierarchy should be interpreted from the lowest hierarchical level (Level 4), which represents the principal driving factors, toward the highest hierarchical level (Level 1), which represents the most dependent outcome. As illustrated in Figure 4, the Attraction sub-elements are structured into four hierarchical levels. At Level 4, the key driving factors are the resolution of land tenure issues involving corporate land leases (E4) and the allocation and disbursement of designated funds for tourism destination development (E5). These foundational factors support the implementation of destination carrying capacity in visitor management in accordance with sustainable tourism principles (E3) and the establishment of coastal zoning to prevent tourism activities from disturbing sea turtle habitats (E7) at Level 3. These factors subsequently support the innovation and diversification of tourism products based on market-oriented independent entrepreneurship (E1) and the development of tourism products integrated with surrounding destinations (E2) at Level 2. Finally, the development of pig farming as a local livelihood activity in Marinsow Tourism Village (E6) occupies the highest hierarchical level and represents the most dependent sub-element within the Attraction element. The placement of E6 within the Attraction element reflects a specific development dilemma in Marinsow: tourism development is being pursued while pig farming remains an important livelihood activity for local residents. This condition has implications for destination positioning and market segmentation, particularly because pig farming may be perceived as incompatible with the preferences of Muslim tourists. Consequently, tourism products and market development associated with this context may need to prioritize non-Muslim tourist segments that are more compatible with the existing local livelihood system. Accordingly, E6 was retained within the Attraction element based on the contextualization and expert judgment undertaken in this study. Its position at the highest hierarchical level indicates that its development is dependent on the preceding institutional, financial, environmental, and tourism-development conditions identified through the ISM analysis.

The Accessibility element comprises four sub-elements related to the ease and quality of access to Marinsow Tourism Village. Contextual relationships among these sub-elements were analyzed using the Structural Self-Interaction Matrix (SSIM) (Table 7) and subsequently converted into the Reachability Matrix (RM) and the Final Reachability Matrix (Tables 7 and 8), following standard ISM procedures (Attri et al., 2013). These findings suggest that improving environmentally friendly and inclusive accessibility should become the initial priority for destination management. Digital accessibility and travel route integration will become more effective after the fundamental physical access system has been strengthened.

The level of consistency among expert judgments on the accessibility element reached 100%, indicating full agreement on the resulting structural relationships. The Driving Power–Dependence analysis (Figure 5) shows that environmentally friendly and inclusive access conditions (E2) are positioned in the Independent quadrant, while environmentally friendly transportation (E1) falls within the Linkage quadrant. The sub-elements of access digitalization (E3) and travel route development (E4) are located in the Dependent quadrant, indicating that their existence is strongly influenced by other sub-elements within the system.

The ISM hierarchical structure of the accessibility element is organized into three levels (Figure 6), reflecting the prioritization of physical access development prior to the strengthening of digital access and tourist travel patterns. The hierarchy of development priorities consists of: (1) the provision of environmentally friendly transportation aligned with local wisdom; (2) environmentally friendly access conditions to the tourism village that are safe and inclusive for persons with disabilities, the elderly, and children; (3) the development of digitally enabled access; and (4) the design of tourist travel route patterns.

The Amenity element comprises six sub-elements representing tourism-supporting facilities in Marinsow Tourism Village. The results of the SSIM, Reachability Matrix (RM), and Final Reachability Matrix are presented in Tables 9–11. The expert consistency level reached 98%, indicating the stability and reliability of the resulting structural relationships. The hierarchical structure indicates that improving basic tourism facilities should precede the development of supporting visitor amenities. Consequently, investments in souvenir centers, information services, and photo attractions should complement, rather than replace, improvements in essential visitor infrastructure.

The MICMAC analysis (Figure 7) indicates that the sub-elements of local wisdom–based souvenir outlets (E2), prayer facilities (musholla) (E3), and the tourism information center (E5) are positioned in the Linkage quadrant. In contrast, parking area arrangement (E6), photo spots (E4), and the revitalization of basic facilities (E1) are classified within the Dependent quadrant.

The ISM hierarchical model (Figure 8) demonstrates that amenity development is incremental and interdependent, consistent with the characteristics of destination facility systems within the ISM framework (Warfield, 2007b). The priority sequence for amenity development is as follows: (1) revitalizing culinary kiosks, public toilets, ticket counters, and gazebos; (2) developing souvenir outlets designed in accordance with local village wisdom; (3) constructing prayer facilities (musholla) at tourism sites; (4) creating selfie areas and photo spots that represent and interpret Marinsow Tourism Village; (5) establishing a Tourist Information Center; and (6) organizing and improving parking areas.

The Human Resources and Community element was analyzed using the same ISM procedure, with the results presented in Tables 12–14. The level of consistency among expert judgments for this element reached 96%, indicating a high degree of agreement on the resulting structural relationships. The results emphasize that strengthening community capacity and institutional participation represents the foundation of tourism village development. Investments in education, tourism skills, and community organizations are therefore expected to generate broader benefits for sustainable destination management.

The results of the Driving Power–Dependence analysis (Figure 9) indicate that the preservation of local wisdom, traditions, and culture (E5) is positioned in the Independent quadrant, thereby serving as the primary driving factor within

the system. The sub-elements of educational improvement (E1) and enhancement of tourism human resource capacity (E2) are located in the Linkage quadrant, while the active role of Pokdarwis (tourism awareness groups) (E4) and the optimization of local livelihoods (E3) are classified as Dependent.

The ISM hierarchical structure for this element (Figure 10) indicates that the strengthening of cultural values and human capacity constitutes the fundamental foundation for the sustainable development of Marinsow Tourism Village, as represented in the ISM structural model. Accordingly, the priority sequence for developing the human resources and community element is as follows: (1) improving the level of education in Marinsow Tourism Village; (2) enhancing the knowledge and competencies of human resources in tourism management; (3) optimizing local livelihoods, such as farming, to enable community capacity for food provision for tourism activities and surrounding villages; (4) strengthening the active role of the Marinsow Tourism Village Pokdarwis in tourism development; and (5) preserving and safeguarding local wisdom, traditions, and customary practices in Marinsow Village.

The findings of this study indicate that the development of Marinsow Tourism Village toward a self-sustaining tourism village is a structural, hierarchical, and interdependent process, as evidenced by the Interpretive Structural Modeling (ISM) results, which did not identify any autonomous variables. This condition suggests that each development element functions as an integral component of a unified system; therefore, partially implemented interventions may lead to inefficiencies and undermine long-term sustainability. These findings are consistent with empirical evidence from rural tourism studies, which emphasizes that the performance and competitiveness of small-scale destinations are primarily determined by their internal structural configurations rather than by isolated factors or sectoral programs (Dias et al., 2021; Lane & Kastenholz, 2015).

A particularly distinctive finding in the Marinsow context is the coexistence of tourism development with pig farming, which remains an important livelihood activity for local residents. This condition creates a specific development dilemma because destination positioning needs to consider the compatibility between existing livelihood practices and the preferences of different tourist segments. This consideration is particularly relevant to Muslim tourism markets. Suhartanto et al. (2021),demonstrate that Muslim tourists' holistic tourism experiences are influenced by halal-related and recreational attributes, highlighting the importance of tourism products and services that accommodate Muslim tourists' religious needs. Similarly, Sutono et al. (2022),demonstrate the importance of a Smart Halal Destination Ecosystem for strengthening the effectiveness, integration, and Muslim-friendly competitiveness of tourism villages. More specifically, Agmon & Eddyono (2025), in their study of Indonesia's Super Priority Destinations, found that the completeness of halal attributes substantially increases the probability of Muslim tourists' destination choice, while religiosity and positive tourist attitudes further strengthen visit probabilities. Taken together, these studies indicate that halal-related destination attributes and Muslim-friendly tourism conditions are relevant considerations in destination positioning and market development. In the context of Marinsow, therefore, the coexistence of pig farming and tourism development should be considered in destination positioning and market segmentation. Rather than eliminating an established local livelihood, tourism development may consider prioritizing non-Muslim tourist segments that are more compatible with the existing livelihood context, while maintaining the economic role of local communities.

Within the attraction element, the ISM results position certainty of resource control (land tenure status) and the optimization of funding as the primary driving factors of the system. This finding reinforces empirical evidence indicating that asset governance and local fiscal capacity are key determinants of success in rural destinations (Durán-Román et al., 2021; Knežević Cvelbar et al., 2016). In this context, the results are consistent with and extend the findings of Eddyono et al., (2021) and Eddyono et al. (2022) which demonstrate that the competitiveness of tourism destinations, including nature-based areas, is more strongly influenced by structural and policy-related factors than by product variations alone. The positioning of attraction innovation and product diversification within the Dependent category further confirms that local entrepreneurial creativity emerges as an outcome of a stabilized system rather than as an initial trigger of development. This argument aligns with the sustainable innovation model proposed by (Eddyono et al., 2025a), which emphasizes that tourism innovation, including e-ecotourism, requires a robust institutional foundation to function effectively as a future lever for destination development.

The prominence of land tenure certainty and development funding as the strongest driving factors reflects the institutional characteristics of Marinsow Tourism Village. Secure land tenure provides legal certainty for tourism investment, infrastructure development, and long-term destination planning, whereas adequate funding determines the capacity to implement tourism programs and public facilities. These findings are consistent with destination competitiveness literature emphasizing that governance quality, institutional capacity, and resource allocation constitute fundamental prerequisites for sustainable destination development (Dwyer et al., 2004; Enright & Newton, 2004; Lane & Kastenholz, 2015).

Within the accessibility element, the finding that environmentally friendly and inclusive physical access quality serves as the primary driving factor of the system indicates that the competitiveness of tourism villages at the micro scale is highly dependent on the readiness of basic infrastructure. Empirical evidence from (Dias et al., 2021; Munar & Ek, 2022) confirms that physical accessibility is a prerequisite for market expansion and the enhancement of visitor experience, particularly in rural and peripheral destinations. The positioning of access digitalization and travel route development as Dependent variables further clarifies that digital transformation in rural tourism cannot operate in isolation. This finding is consistent with (Dianggorobles & Eddyono, 2025) which demonstrates that digital and tourism technology innovations are effective only when supported by adequate structural readiness and sound destination governance.

The results for the amenity element indicate that supporting facilities function as a systemic response to the strengthening of other strategic elements rather than as the primary drivers of tourism village development. In the context of Marinsow Tourism Village, this finding suggests that the development of basic visitor amenities, including public toilets, prayer facilities, parking areas, tourism information centers, and kiosks for local products, should be implemented progressively following improvements in institutional capacity, accessibility, and tourism attractions. Prioritizing amenity development in this sequence will improve visitor comfort and service quality while ensuring that investments are aligned with the village's tourism development capacity and long-term sustainability.

This finding is consistent with empirical studies emphasizing that amenity investments in small-scale destinations and tourism villages often fail to generate significant impacts when they are not aligned with the capacity of attractions and accessibility (Carr et al., 2016). In this context, the findings support the principles of sustainable tourism governance, which emphasize efficiency and the

alignment of facility development with the actual needs of destinations and local communities.

The human resources and community element demonstrates that the preservation of local wisdom, traditions, and culture constitutes the strongest driving factor within the system for developing a self-sustaining tourism village. Recent empirical evidence confirms that cultural identity and community social capital are key determinants of the sustainability of community-based destinations (Bramwell et al., 2017; Nunkoo, 2017). This finding is consistent with the results of Saadah & Eddyono (2025), who emphasize the role of social resilience and community self-reliance in enabling tourism villages to withstand crises, as well as (Hadiningsih & Eddyono, 2025), who show that the success of community-based tourism in improving community welfare is largely determined by local social and cultural capacity. The positioning of human resource capacity building and education as Linkage variables indicates that human capital strengthening exerts substantial systemic effects, yet requires consistent policy support to prevent the emergence of new forms of dependency.

The importance of preserving local wisdom demonstrates that tourism village competitiveness extends beyond economic performance. Local traditions and cultural identity function as strategic assets that differentiate rural destinations while strengthening community ownership of tourism development. This finding reinforces the Community-Based Tourism (CBT) perspective that sustainable tourism depends on maintaining local identity alongside economic development (Giampiccoli & Saayman, 2018; UN Tourism, 2022).

Although tourism development creates important economic opportunities, the findings also reveal potential trade-offs between tourism growth, environmental conservation, and community autonomy. Increasing tourism activities may improve local income but simultaneously place pressure on natural resources and cultural values if not accompanied by effective governance and community participation. Consequently, tourism development should balance economic objectives with environmental protection and local empowerment to ensure long-term sustainability (Butler, 1999; Lane & Kastenholz, 2015; UN Tourism, 2022).

These findings also complement the current tourism village development guidelines by demonstrating that the development process should not only follow conventional stages of destination development but also consider the structural dependencies among strategic factors identified through ISM. While existing tourism village policies generally emphasize the simultaneous improvement of attractions, accessibility, amenities, and community participation, the present study suggests that these components should be developed sequentially according to their hierarchical driving power. In the context of Marinsow Tourism Village, institutional strengthening, land tenure resolution, and development funding should precede investments in visitor facilities such as parking areas, public toilets, prayer facilities, tourism information centers, and kiosks for local products. Implementing these priorities sequentially is expected to improve resource allocation efficiency, strengthen destination governance, and enhance the long-term sustainability of tourism village development.

From a practical perspective, the results provide a strong empirical foundation for the formulation of policy innovations and destination management strategies, particularly for tourism villages functioning as buffer zones for national priority destinations. Such a policy approach has the potential to ensure that tourism development in buffer areas of priority destinations is not merely oriented toward increasing visitor numbers, but rather toward future-oriented, innovative, balanced, and comprehensive policies that integrate the interests of multiple tourism stakeholders within the village context (Eddyono, 2023). For Marinsow Tourism Village, this implies that strategic interventions should be implemented as an integrated development package because improvements in one strategic element are likely to influence other components within the tourism system.

Conclusion

This study employed Interpretive Structural Modeling (ISM) to identify the hierarchical relationships among the strategic factors influencing the transformation of Marinsow Tourism Village into a self-sustaining tourism village. The findings indicate that institutional certainty, development funding, the preservation of local wisdom, and accessible tourism infrastructure constitute the principal driving factors that should be prioritized before tourism product innovation, amenity development, and community-based economic activities. The findings also reveal a specific development dilemma in Marinsow, where tourism development must coexist with pig farming as an important local livelihood activity. Although this livelihood contributes to the local economic system, its presence has implications for destination positioning and market segmentation, particularly in relation to Muslim tourists. Therefore, tourism product development and market targeting need to consider the existing livelihood structure and may be oriented toward non-Muslim tourist segments that are more compatible with the local context. The study further demonstrates that tourism village transformation is not driven by isolated factors but by a hierarchical system of interdependent elements that requires integrated planning and coordinated stakeholder collaboration.

From a practical perspective, the findings provide a strategic roadmap for tourism village development, particularly for villages functioning as buffer zones of National Priority Destinations. Village governments should prioritize institutional strengthening, land tenure resolution, and the preservation of local cultural identity as the foundation for sustainable tourism development. Regional tourism offices should support tourism villages through integrated funding mechanisms, technical assistance, and destination governance programs. Village-Owned Enterprises (BUMDes) should strengthen community-based entrepreneurship and local economic activities, while community organizations, including Tourism Awareness Groups (Pokdarwis), should actively preserve local traditions, improve tourism services, and strengthen collaborative destination management. Such coordinated actions are essential for accelerating the transformation of tourism villages into self-sustaining destinations.

This study has several limitations. First, the ISM analysis relies on expert judgment, which inevitably involves a degree of subjectivity despite the application of expert consensus and consistency assessment procedures. Second, the study adopted a single-case study design focusing on Marinsow Tourism Village, which may limit the generalizability of the findings to tourism villages with different socio-economic, cultural, and institutional characteristics.

Future research is encouraged to validate the proposed hierarchical framework through comparative studies involving multiple tourism villages or National Priority Destinations. Future studies may also integrate complementary quantitative approaches, such as Structural Equation Modeling (SEM) or other multivariate techniques, to examine the causal relationships among the strategic factors identified in this study. Such research would strengthen the empirical foundation for developing evidence-based policies that support sustainable and self-sustaining tourism village development.

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